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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GUZMAN, APRIL S	
ART UNIT	**PAPER NUMBER**
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/525,829	Applicant(s) DUFFETT-SMITH ET AL.	
	Examiner April S. Guzman	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _22 January 2007_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-21_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-21_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _25 February 2005_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _02/25/2005_.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Examiner acknowledges the receipt of the Applicant's amendments filed January 22,2007. The amendment to the specification on page 15 lines 4-6 has been acknowledged and therefore the rejection under 35 U.S.C. 101 has been withdrawn. Claim 20 has been amended. Claims 1-21 are currently pending in the application.

Response to Arguments

Applicant's arguments with respect to the rejection(s) of claim(s) 1-21 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art reference. Claims 1-21 are still pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ruutu et al. (U.S. Patent # 6,445,928)** in view of **Parl et al. (U.S. Patent # 5,883,598)**.

Consider **claim 1**, Ruutu et al. teach a method of estimating the time offsets between signals transmitted by plural transmitters of a communications network and received by a receiver attached to a terminal (Abstract, Figure 1, and column 1 lines 11-16), the method comprising the steps of

(a) creating a terminal section of a representation of the signals from the plural transmitters received by the receiver at the terminal (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(b) creating a first section of a representation of the signal transmitted by a first of said transmitters, and creating a second section of a representation of the signal transmitted by a second of said transmitters, each of which sections overlaps in time with the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(c) using the first section, the second section and a set of signal parameters, including initial estimates of the time offsets between the first section and the terminal section and between the second section and the terminal section, to create a model of a section of a representation of the composite signal received by the receiver from the first and second transmitters (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(d) comparing the model with the terminal section (column 4 lines 11-26).

However, Ruutu et al. fail to teach refining the set of signal parameters including the time offset estimates to minimize the difference between said model and the terminal section ; and adopting the time offsets in the refined parameter set used to minimize the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section.

In the related art, Parl et al. teach refining the set of signal parameters including the time offset estimates to minimize the difference between said model and the terminal section ; and adopting the time offsets in the refined parameter set used to minimize the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, column 5 lines 17-39, column 8 lines 30-57, and column 17 lines 12-35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Parl et al. into the teachings of Ruutu et al. for the purpose of de-emphasizing the effects of signals interfered with by multipath by having them given less weight, or even eliminated from the computation.

Consider **claim 2, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach wherein the first section, the second section, and the terminal section are created by sampling the respective signals at sample times according to a predetermined sampling rate (Ruutu et al. – column 3 lines 44-67, and column 4 lines 11-29).

Consider **claim 3, as applied to claim 2 above**, Ruutu et al. as modified by Parl et al. further teach wherein at least the first section is scaled by a first initial complex amplitude value and delayed by a first initial time delay and the second section is scaled by a second initial complex amplitude value and delayed by a second initial time delay, where after the scaled and delayed first and a second sections are used to build an adjustable representation or model of the combined signal from the first and second transmitters received by the receiver, the model of the combined signal from the first and second transmitters received by the receiver is subtracted from the terminal section to produce a time series containing the complex difference at each sample time, and wherein the squares of the amplitudes of the complex difference at each sample time are added to produce a single real value representative of the overall difference between the model and the target signal or set of signals (Parl et al. – Abstract, Figure 1, column 5 lines 17-28, column 8 lines 30-43, column 11 lines 36-45, and column 20 lines 56-64).

Consider **claim 4, as applied to claim 3 above**, Ruutu et al. as modified by Parl et al. further teach wherein the model comprises three, four or more scaled and delayed transmitter sections (Ruutu et al. – Figure 1, column 3 lines 1-16, and colum3 lines 24-43).

Consider **claim 5, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach wherein the first and second sections are created at the respective first and second transmitters (Ruutu et al. – Figure 1, column 2 lines 66-67, and column 3 lines 1-16).

Consider **claim 6, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach wherein the first and second sections are created in one or more sampling devices attached to the respective transmitters (Ruutu et al. – column 3 lines 44-67, and column 4 lines 11-29; and Parl et al. – column 8 lines 8-57).

Consider **claim 7, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach wherein the first and second sections are created by computer programs using information supplied from the network about the transmitted signals (Parl et al. – column 11 lines 36-45).

Consider **claim 8, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach wherein the signal representation sections are sent to one or more computing devices in which said estimates are calculated (Ruutu et al. – column 3 lines 44-67, and column 4 lines 11-29).

Consider **claim 9, as applied to claim 8 above**, Ruutu et al. as modified by Parl et al. further teach wherein the terminal location is calculated in said one or more computing devices (Ruutu et al. – column 4 lines 11-26).

Consider **claim 10, as applied to claim 8 above**, Ruutu et al. as modified by Parl et al. further teach wherein the one or more computing devices are in the or another terminal (Ruutu et al. – column 3 lines 44-67, and column 4 lines 11-29).

Consider **claim 11, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach wherein the terminal section of the representation of the signals received by the receiver at the terminal is recorded in the terminal before being sent to a computing device (Parl et al. – column 5 lines 17-39).

Consider **claim 12, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach wherein the terminal section of the representation of the signals received by the receiver at the terminal is transferred in real time to the computing device and a recording made there (Ruutu et al. – column 4 lines 11-26).

Consider **claim 13, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach further comprising the step of calculating the position of a mobile terminal in a communication network using the estimated time offsets (column 4 lines 47-57).

Consider **claim 14**, Ruutu et al. teach apparatus for estimating the time offsets between signals transmitted by plural transmitters of a communications network and received by a receiver attached to a terminal (Abstract, Figure 1, and column 1 lines 11-16), the apparatus comprising

(a) processing means arranged to create a terminal section of a representation of the signals from the plural transmitters received by the receiver at the terminal (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(b) processing means arranged to create a first section of a representation of the signal transmitted by a first of said transmitters, and to create a second section of a representation of the signal transmitted by a second of said transmitters, each of which sections overlaps in time with the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(c) processing means arranged to create a model of a section of a representation of the composite signal received by the receiver from the first and second transmitters using the first section, the second section and a set of signal parameters, including initial estimates of the time

offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(d) processing means arranged to compare the model with the terminal section (column 4 lines 11-26).

However, Ruutu et al. fail to teach processing means arranged to refine the set of signal parameters including the time offset estimates to minimize the difference between said model and the terminal section; and processing means arranged to adopt the time offsets in the refined parameter set used to minimize the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section.

In the related art, Parl et al. teach processing means arranged to refine the set of signal parameters including the time offset estimates to minimize the difference between said model and the terminal section; and processing means arranged to adopt the time offsets in the refined parameter set used to minimize the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, column 5 lines 17-39, column 8 lines 30-57, and column 17 lines 12-35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Parl et al. into the teachings of Ruutu et al. for the purpose of de-emphasizing the effects of signals interfered with by multipath by having them given less weight, or even eliminated from the computation.

Consider **claim 15, as applied to claim 14 above**, Ruutu et al. as modified by Parl et al. further teach which includes a sampling device or devices in which the first section, the second section, and the terminal section are created by sampling the respective signals at sample times according to a predetermined sampling rate (Ruutu et al. – column 3 lines 44-67, and column 4 lines 11-29).

Consider **claim 16, as applied to claim 14 above**, Ruutu et al. as modified by Parl et al. further teach wherein at least the first section is scaled by a first initial complex amplitude value and delayed by a first initial time delay and the second section is scaled by a second initial complex amplitude value and delayed by a second initial time delay, where after the scaled and delayed first and a second sections are used to build an adjustable representation or model of the combined signal from the first and second transmitters received by the receiver, the model of the combined signal from the first and second transmitters received by the receiver is subtracted from the terminal section to produce a time series containing the complex difference at each sample time, and wherein the squares of the amplitudes of the complex difference at each sample time are added to produce a single real value representative of the overall difference between the initial model and the target signal or set of signals (Parl et al. – Abstract, Figure 1, column 5 lines 17-28, column 8 lines 30-43, column 11 lines 36-45, and column 20 lines 56-64).

Consider **claim 17**, Ruutu et al. teach a telecommunications terminal including apparatus for finding the time offsets between signals transmitted by a plurality of transmitters of a communications network and received by a receiver attached to the terminal (Abstract, Figure 1, and column 1 lines 11-16), the apparatus comprising

(a) processing means arranged to create a terminal section of a representation of the signals from plural transmitters received by the receiver at the terminal (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(b) processing means for receiving a first section of a representation of the signal transmitted by a first of said transmitters and a second section of a representation of the signal transmitted by a second of said transmitters, each of which sections overlaps in time with the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(c) processing means arranged to create a model of a section of a representation of the composite signal received by the receiver from the first and second transmitters using the first section, the second section and a set of signal parameters, including initial estimates of the time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

(d) processing means arranged to compare the model with the terminal section (column 4 lines 11-26).

However, Ruutu et al. fail to teach processing means arranged to refine the set of signal parameters including the time offset estimates to minimise the difference between said model and the terminal section; and processing means arranged to adopt the time offsets in the refined parameter set used to minimise the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section.

In the related art, Parl et al. teach processing means arranged to refine the set of signal parameters including the time offset estimates to minimise the difference between said model and the terminal section; and processing means arranged to adopt the time offsets in the refined parameter set used to minimise the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, column 5 lines 17-39, column 8 lines 30-57, and column 17 lines 12-35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Parl et al. into the teachings of Ruutu et al. for the purpose of de-emphasizing the effects of signals interfered with by multipath by having them given less weight, or even eliminated from the computation.

Consider **claim 18**, Ruutu et al. teach a communications network for finding the time offsets between signals transmitted by a plurality of transmitters of the communications network and received by a receiver attached to a terminal (Abstract, Figure 1, and column 1 lines 11-16), the network comprising

(a) a computing device or devices (column 3 lines 44-67, column 4 lines 11-26, column 4 lines 47-67, and column 5 lines 1-10);

(b) a terminal having a receiver attached to the terminal, processing means arranged to create a terminal section of a representation of the signals from plural transmitters received by the receiver at the terminal, and means for sending the section to the computing device or devices (column 3 lines 1-16, column 3 lines 24-43, column 3 lines 44-67, column 4 lines 11-29);

(c) sampling devices associated with respective first and second ones of said transmitters for creating respective first and second sections of representations of the signals transmitted by a first and a second of said transmitters, each of which sections overlaps in time with the terminal section, and for sending the sections of representations to the computing device or devices (Ruutu et al. – column 3 lines 44-67, and column 4 lines 11-29; and Parl et al. – column 8 lines 8-57);

the computing device or devices being adapted to

create a model of a section of a representation of the composite signal received by the receiver from the first and second transmitters using the first section, the second section and a set of signal parameters, including initial estimates of the time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

compare the model with the terminal section (column 4 lines 11-26);

However, Ruutu et al. fail to teach refine the set of signal parameters including the time offset estimates to minimise the difference between said model and the terminal section; and adopt the time offsets in the refined parameter set, used to minimise the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section.

In the related art, Parl et al. teach refine the set of signal parameters including the time offset estimates to minimise the difference between said model and the terminal section; and adopt the time offsets in the refined parameter set, used to minimise the difference between said

model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, column 5 lines 17-39, column 8 lines 30-57, and column 17 lines 12-35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Parl et al. into the teachings of Ruutu et al. for the purpose of de-emphasizing the effects of signals interfered with by multipath by having them given less weight, or even eliminated from the computation.

Consider **claim 19, as applied to claim 18 above**, Ruutu et al. as modified by Parl et al. further teach the computing device being adapted to

create a model of a section of a representation of the composite signal received by the receiver from the first and second transmitters using the first section, the second section and a set of signal parameters, including initial estimates of the time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

compare the model with the terminal section (column 4 lines 11-26);

refine the set of signal parameters including the time offset estimates to minimize the difference between said model and the terminal section (Parl et al. - Abstract, column 5 lines 17-39, column 8 lines 30-57, and column 17 lines 12-35); and

adopt the time offsets in the refined parameter set, used to minimize the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section (Parl et al. - Abstract, column 5 lines 17-39, column 8 lines 30-57, and column 17 lines 12-35).

Consider **claim 20**, Ruutu et al. teach a program code embodied on a computer-readable medium adapted to

create a terminal section of a representation of the signals from plural transmitters received by the receiver at the terminal (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

process a first section of representation of the signal transmitted by a first of said transmitters and a second section of a representation of the signal transmitted by a second of said transmitters, each of which sections overlaps in time with the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

create a model of a section of a representation of the composite signal received by the receiver from the first and second transmitters using the first section, the second section and a set of signal parameters, including initial estimates of the time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, Figure 1, column 2 lines 66-67, column 3 lines 1-16, and column 3 lines 44-67);

compare the model with the terminal section (column 4 lines 11-26).

However, Ruutu et al. fail to teach refine the set of signal parameters including the time offset estimates to minimize the difference between said model and the terminal section; and adopt the time offsets in the refined parameter set, used to minimize the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section.

In the related art, Parl et al. teach refine the set of signal parameters including the time offset estimates to minimize the difference between said model and the terminal section; and

adopt the time offsets in the refined parameter set, used to minimize the difference between said model and the terminal section, as the estimated time offsets between the first section and the terminal section and between the second section and the terminal section (Abstract, column 5 lines 17-39, column 8 lines 30-57, and column 17 lines 12-35).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Parl et al. into the teachings of Ruutu et al. for the purpose of de-emphasizing the effects of signals interfered with by multipath by having them given less weight, or even eliminated from the computation.

Consider **claim 21, as applied to claim 1 above**, Ruutu et al. as modified by Parl et al. further teach further comprising the step of tracking a moving mobile terminal in a communications network by periodically estimating and using the estimated time offsets (Parl et al. – column5 lines 17-28, and column 10 lines 41-55).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see PTO-892 Notice of References Cited).

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to April S. Guzman whose telephone number is 571-270-1101. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April S. Guzman
A.S.G/asg

03/31/07

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